FALCO KREYENBORGI: MORE PIECES FOR THE PUZZLE

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Information on the status and taxonomic position of *Falco kreyenborgi* is reviewed in a companion paper (Anderson and Ellis, *this issue*). Observations made December 1980 may help clarify the taxonomic position of the bird.

In quest of information on *kreyenborgi*, we visited southern Chile and Argentina from 28 November until 20 December 1980. Working under the hypothesis that if *kreyenborgi* does exist as a distinct and viable species, it must have a population center where it can be encountered in significant numbers, we searched what we considered to be the most likely breeding zone, the Patagonian steppe from Rio Negro to Santa Cruz Provinces of southern Argentina. We located nine previously unknown pairs of Peregrine Falcon (*Falco peregrinus cassini*) and visited two Peregrine sites found in 1979. We found two examples of *kreyenborgi*.

The first observation began about 1800 on 11 December when Roundy noted two unidentified falcons soaring together near a river cliff (ca. 80m high) where an adult (probably female) Peregrine was later observed perched in a pothole. As Roundy approached, a Peregrine protested and soared overhead, then drifted off. Roundy found the rock cavity devoid of eggs or young and the Peregrine failed to reappear. As Roundy left the area, he noted a large white falcon perched near the center of the cliff. It showed plumage characteristic of an adult *Falco kreyenborgi* (as illustrated in Plate 162, Brown and Amadon 1968). After observing it for ca. 45 min., Roundy left while the bird remained perched on the cliff.

During this same period Anderson located a pair of adult Peregrines (apparently nonproductive) on a nearby tributary of the river and near enough that the females seen at each site may have been the same bird.

On December 12, we returned to search for a breeding site of the white falcon. One or more of us watched the cliff from 1200 to 2100. We also searched river cliffs and side canyons near the cliff. During the day we made the following observations of large falcons in the area. At about 1400 Ellis observed an adult (probably female) Peregrine

about 1.5 km east of the river. The bird perched ca. 10 min. on a rocky knob along the ridge crest, then continued toward the cliff. At about the same time Roundy saw an adult (probably female) Peregrine (likely the same bird) fly in from the back side of the cliff and perch near the rim for 10–15 min. while being harrassed by a stooping American Kestrel (*Falco spaverius*). During its stay, the Peregrine performed a series of *Eechip* calls before leaving with the kestrel still in pursuit.

At ca. 1643 a white falcon was again detected perched high on the cliff. It remained until 2053 when it flew away from the river at dusk. During its stay, we photographed it and carefully observed plumage and behavior from distances of 60 to 100 m using 7x and 10x binoculars.

Fine details of the bird's plumage could have escaped detection but in general the falcon was white below except for black primary tips (readily visible in flight) and a series of broad dark bands (10–15) crossing the tail. A wedge of light gray was noted on the right side of the breast, but since this patch was not symmetrically matched on the left side, it may have been soilage. Above, the secondaries were coarsely checked white and dark gray-black. The back and lesser wing coverts were finely checked with white and dark gray with a hint of brown. The primaries appeared dark above, and when folded nearly reached the tip of the tail. In general the head was white, conspicuously marked with dark narrow malar and eye stripes. Less conspicuous dark marks were noted on the crown (darkest posteriorly) and nape where lateral ocelli and a weak central stripe were noted. The cere, orbits, and feet were bright yellow to orange. The eye was dark. Because of the bird's relative small size, quick movements, and general morphology, we judged it a male.

The white falcon also exhibited behavior demonstrating its close association with the cliff. During the evening it retrieved and consumed an unidentified small bird cached on the cliff. During an earlier 10–15 min. period, it gave several series of rasping calls while exploring a broad sloping ledge. These notes closely resembled the *Eechip* call associated with falcon reproductive displays described by Wredge and Cade (1977).

Over two days we observed two large falcons attending the same cliff. They individually exhibited behavior associated with a reproductive attempt although no interactions were observed involving the white falcon. One was an adult (probably female) Peregrine: the second was judged to be a male *kreyenborgi*. The significance of these observations is best judged in context of our observations made at another site three days later.

On 14 December we revisited a Peregrine breeding site where Roundy observed a pair with fledged young in December 1979. After searching the area, we located a pair of adult Peregrines on 15 December with four recently fledged young (1–2 weeks out of the nest). The darkest juvenile was a deep slate above with a dark cap and a medium rufous ventral background color. The second and third birds were lighter above and below but were still definitely Peregrine falcons. The fourth if seen alone would have unquestionably been identified as *kreyenborgi*.

The family group was observed through the day (1100–2200). During this period, adult Peregrines brought food to the young three times, but never directly to the light one. Twice the light falcon "pirated" prey from the nestlings and once an adult took the prey back from the light bird. The light falcon was observed interacting as a normal fledgling within the family group and at dusk three of the young, including the light bird, roosted in close proximity on a cliff wall.

To document as accurately as possible the light bird's plumage, we captured and photographed it. The accompanying frontispiece illustrates that the bird was marked much like the immature *kreyenborgi* collected in 1961 (Kovacs 1962–3) and the immature photographed on Isla Grande in 1979 (Ellis and Glinski 1980). The light bird (a probable female) weighed 1010 + 10 gms compared to 995 + 10 gms for its supposed female nest mate. Wing and tail measurements were not taken because the remiges and rectrices were not fully developed. The light bird was released at the breeding site on 16 December.

Because the young falcons had fledged prior to our visit, we cannot be certain that the light falcon was produced by the Peregrines. The bird was so different from even the palest of the other fledglings that there is reason to suspect that it may have been produced elsewhere. However, the stage in primary and tail development agree well with the other young at the site and the bird was treated as a member of the family group.

The present evidence suggests that *Falco kreyenborgi* does not exist as a separate species and that white falcons occasionally observed on the plains of Patagonia could be characterized as the pallid form of the Austral Peregrine. However, there is reason for doubt. First, the Peregrine, although morphologically highly variable worldwide (Vaurie 1961), is nowhere known to produce a light (or dark) color phase. (However, the range of morphological color expression of immature *F. p. pealei* nearly covers that shown by the dark and "white" bird mentioned here but do not occur in such discrete phases [C. M. White pers. comm.].) Second, however unlikely, it may be that the white juvenile falcon which we observed had wandered in from a nearby eyrie where it had white parents. An example of natural, temporary, cross-fostering of a fledgling Prairie Falcon (*Falco mexicanus*) on Peregrine Falcon (*F. p. anatum*) foster parents has been documented (Ellis and Groat ms.). Conversely, the pale juvenile may not be truly representative of *kreyenborgi*: its light buffy background color is darker than that reported for the two juveniles for which we have descriptive information (Kovacs 1962–3, Ellis and Glinski 1980). The bird, however, was in fresh plumage which with reasonable sun bleaching may yield a near white ventral background color. The general pattern of the feather barring and streaking agrees well with the two juveniles mentioned above and with the specimen from Viamonte, Isla Grande (Olrog 1948).

A final point of confusion stems from our incomplete knowledge of the origin of the first three specimens of *kreyenborgi* (Anderson and Ellis, *this issue*). It may be that all members of the family were white birds, or just as likely, the laymen who took the young may have preferentially selected the unusual white birds and made no mention of typical Peregrine siblings or parents.

In summary, while the most likely explanation of the available evidence is that *Falco kreyenborgi* is a pale color phase of the Peregrine (*F. p. cassini*), there are still enough unanswered questions to leave room for doubt and to fuel future research. Why does the white form occur only in southern Patagonia? What genetic mechanism controls expression of the white form? What is the ratio of light to dark birds? Do light and dark birds ecologically segregate? The mystery surrounding the white falcon remains.

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NOTES ON OBSERVING NESTING ACCIPITERS

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Since 1976 we have been observing European Sparrowhawk *Accipiter nisus* nests during the breeding season to determine this predator's effect on the population of titmice *Parus* spp. in Wytham Woods, Oxford. While results of this study have been published elsewhere (Geer 1978, Perrins and Geer 1980, Geer in press), we present here some methods for watching hawk nests since we have had good results observing from close quarters, a technique that many researchers of raptors have expressed to us a reluctance to use.

Between 1976 and 1979 we placed 8 blinds at distances of less than 6m from Sparrowhawk nests during the incubation and nestling periods. Our first attempt entitled placing a canvas blind on top of a platform of wood and angle-iron built in the fork of a tree adjacent to the tree holding the hawk nest. Building took 5 one-hour periods, spread out over 4 days to minimize disturbance, and was begun 2 days after the young hatched. Once completed and occupied, the adults showed no shyness of it. We found that the 6m distance from blind to nest was too great to be able to identify prey accu-

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